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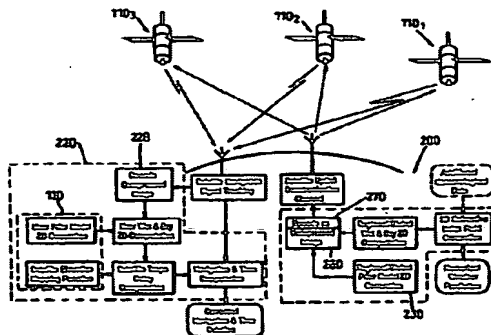
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[Continued on next page]

(54) Title: CORRECTION OF TROPOSPHERE INDUCED ERRORS IN GLOBAL POSITIONING SYSTEMS



(57) Abstract: A method of obtaining data for use by a receiver of a satellite positioning system or a GNSS comprises deriving the data remotely from the receiver by a server (200), using meteorological information and a regional or global three dimensional map of grid points from which it computes tropospheric delays by ray tracing through the refractivity field derived from atmospheric measurements of pressure, temperature and water data content, such measurements being available from meteorological bodies. When used to enhance position determined by a user receiver that includes a non-meteorological, climate based model (130) giving zenith delays and means (130') to map them to particular inclinations, the server also includes a copy of such non-meteorological model (230) and provides its ray traced delay values as zenith delays. The sets of zenith delay values for corresponding grid points are compared in the server (260) and modifications developed (preferably in fractional form) by which the non-meteorological delay values require correcting to be accurate. The correction sets are reduced by image compression techniques (270) and transmitted via the satellites (110, etc) of the GNSS at low data rate to the user receiver, which receiver simply applies the corrections to the Zenith delays derived by its own model. If a user position is known, the server may derive accurate tropospheric delay values directly for the receiver position directly for transmission.